

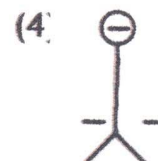
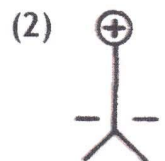
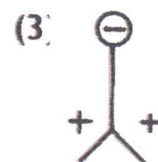
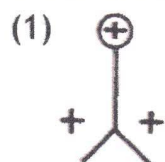
1. As a positively charged rod is brought near to but not allowed to touch the knob of an uncharged electroscope, the leaves will diverge because

- (1) negative charges are transferred from the electroscope to the rod
- (2) negative charges are attracted to the knob of the electroscope
- (3) positive charges are repelled to the leaves of the electroscope
- (4) positive charges are transferred from the rod to the electroscope

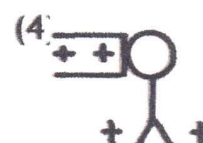
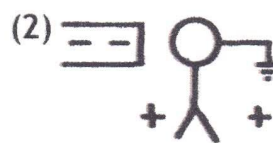
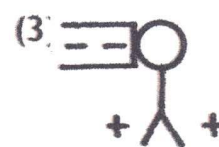
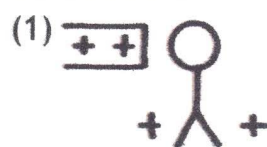
2. If a positively charged rod is brought near the knob of a positively charged electroscope, the leaves of the electroscope will

- (1) converge, only
- (2) diverge, only
- (3) first diverge, then converge
- (4) first converge, then diverge

3. A negatively charged rod is held near the knob of an uncharged electroscope. Which diagram best represents the distribution of charge on the electroscope?



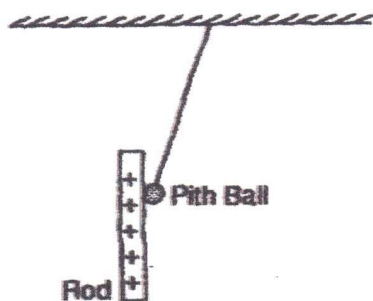
4. Which diagram best illustrates a neutral electroscope being charged by conduction?



5. A positively charged object was used to give an electroscope a negative charge. The electroscope was charged by

- (1) contact
- (2) conduction
- (3) induction
- (4) reduction

6. As shown in the diagram below, a neutral pith ball suspended on a string is attracted to a positively charged rod.



During contact with the rod, the pith ball

- (1) loses electrons (3) loses protons
(2) gains electrons (4) gains protons
7. One of two identical metal spheres has a charge of $+q$, and the other sphere has a charge of $-q$. The spheres are brought together and then separated. Compared to the total charge on the two spheres before contact, the total charge on the two spheres after contact is
- (1) less (3) the same
(2) greater
8. A rod and a piece of cloth are rubbed together. If the rod acquires a charge of $+1 \times 10^{-6}$ coulomb, the cloth acquires a charge of .
- (1) 0 C (3) -1×10^{-6} C
(2) $+1 \times 10^{-6}$ C (4) $+1 \times 10^6$ C

9. The unit of charge in the MKS system is the

(1) ohm (3) coulomb
(2) ampere (4) volt

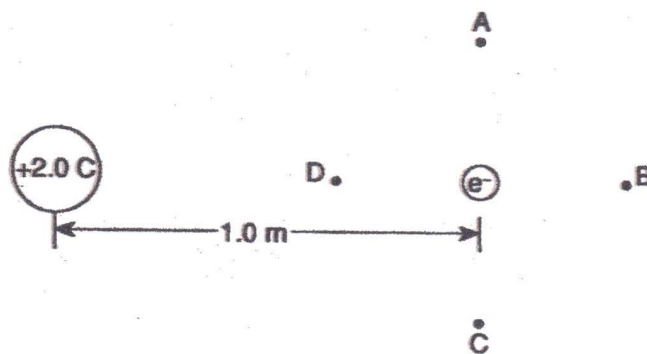
10. Which electric charge is possible?

(1) 8.0×10^{-20} C (3) 3.2×10^{-19} C
(2) 2.4×10^{-19} C (4) 6.32×10^{-18} C

11. A neutral rubber rod is rubbed with fur and acquires a charge of -2×10^{-6} coulomb. The charge on the fur is

(1) $+1 \times 10^{-6}$ C (3) -1×10^{-6} C
(2) $+2 \times 10^{-6}$ C (4) -2×10^{-6} C

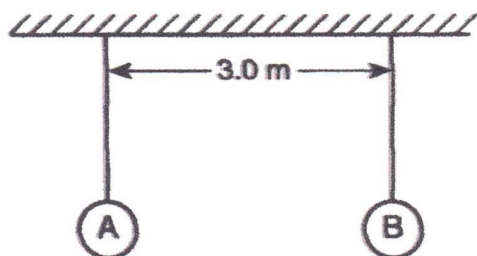
12. An electron is located 1.0 meter from a $+2.0$ -coulomb charge, as shown in the diagram below.



The electrostatic force acting on the electron is directed toward point

(1) A (3) C
(2) B (4) D

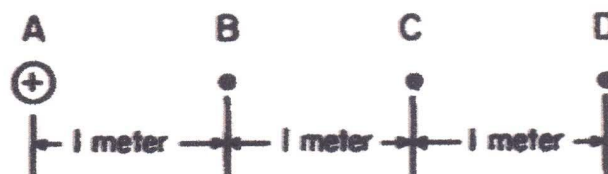
13. The diagram below shows two metal spheres suspended by strings and separated by a distance of 3.0 meters. The charge on sphere A is $+5.0 \times 10^{-4}$ coulomb and the charge on sphere B is $+3.0 \times 10^{-5}$ coulomb.



Which statement best describes the electrical force between the spheres?

- (1) It has a magnitude of 15 N and is repulsive.
 - (2) It has a magnitude of 45 N and is repulsive.
 - (3) It has a magnitude of 15 N and is attractive.
 - (4) It has a magnitude of 45 N and is attractive.
14. The electrical force of attraction between two point charges is F . The charge on one of the objects is quadrupled and the charge on the other object is doubled. The new force between the objects is
- (1) $6F$
 - (2) $2F$
 - (3) $\frac{1}{2}F$
 - (4) $8F$

Base your answers for questions 15 and 16 on the diagram below which shows a positive point charge placed at A.



15. If the charge is moved from point B to point C, the force between the two charges will
- (1) decrease
 - (2) increase
 - (3) remain the same
16. The electric field intensity at point B is E . At point D the field intensity will be equal to
- (1) $\frac{1}{9} E$
 - (2) $\frac{1}{3} E$
 - (3) $3E$
 - (4) $9E$
-
17. If the charge on each of two point sources is doubled, the electrostatic force between them
- (1) remains the same
 - (2) is one-half as great
 - (3) is twice as great
 - (4) is four times as great